

Chapter 14

Cross Talk Between Functional Foods and Gut Health

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ABSTRACT

The phrase “Let food be the medicine and medicine be the food,” coined by Hippocrates over 2500 years ago is receiving a lot of interest today as food scientists and consumers realize the many health benefits of certain foods. Lately, consumer’s choice in food consumption has improved considerably due to the acknowledgment of the fact that foods influence the overall human health. There has been a growing interest over the years to explore beneficial gut microbiota and different interventions are devised to modulate the microbiota through the use of probiotics, prebiotics and synbiotics. Besides improving intestinal health, functional food ingredients also have the potential to restore the gut homeostasis during intestinal disorders conditions. The human gut has a marked effect on the nutritional and health status of the host due to the presence of diverse bacterial species, which develop important metabolic and immune functions. This makes intestinal microbiota a target for nutritional and therapeutic interventions and a factor which influence the biological activity of other food compounds. This chapter attempts to highlight how the reciprocal interactions take place between the gut microbiota and functional food components and how these interactions affect human health and manage various metabolic disorders.

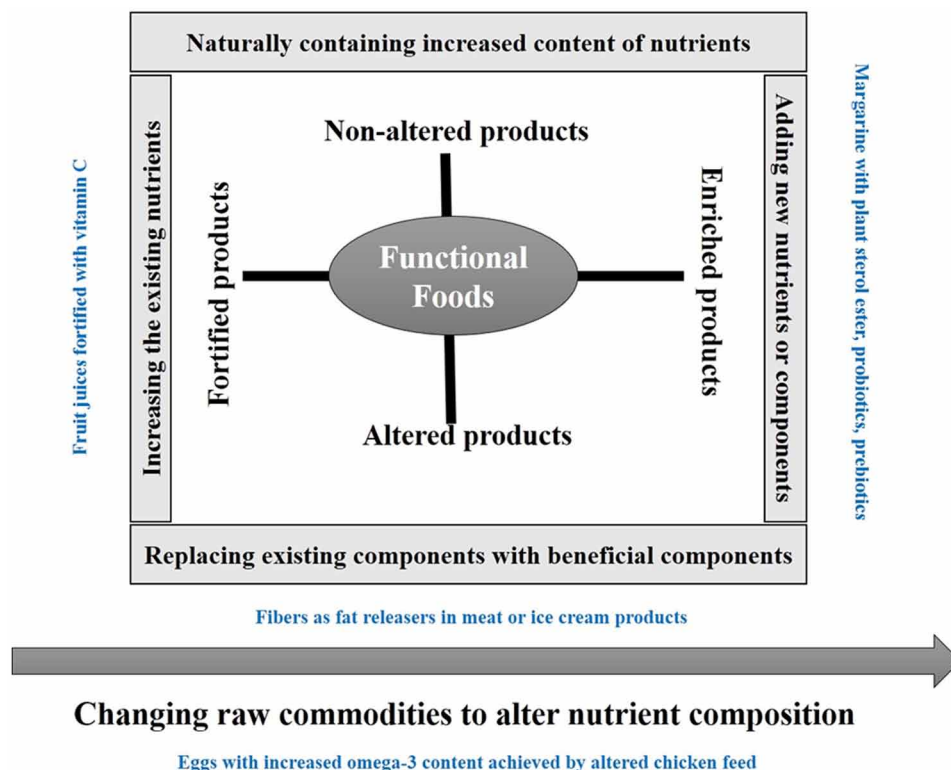
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INTRODUCTION

According to national and international guidelines, the legal framework for “functional food” represents a number of legally defined subgroups: The scheme of subgroups are shown in Figure 1. Foodstuffs intended for particular nutritional uses, Novel foods, Fortified foods, Dietary supplements and Dietary foods (Asp et al., 2004). Since ages, food is consumed to satisfy host physiological requirements. When the relation between diet and health research was evolved, the idea of ‘functional foods’ has been conceived (Laparra & Sanz 2010; Gibson, 2007). Today, foods are not consumed only to satisfy hunger but also to provide nutrients for humans and prevent nutrition-related diseases, modulating gut microbiota and thus improving physical and mental well-being (Roberfroid, 2000). There is a rapid shift in consumer’s interest in the health-enhancing roles of specific foods or physiologically active food components, so-called functional foods (Pang et al., 2012) and it has been gradually accepted that foods contribute directly to their health (Mollet et al., 2002). Increasing awareness for the relationship between good nutrition and increasing demand for food not only provides understanding about foods but also enhances the knowledge about their health benefits (Burgain et al., 2011) and leads to the development of the functional food concept and nutraceuticals (Roberfroid, 2000).

Manipulation of gut microbiota through the use of probiotics, prebiotics and synbiotics has been taking place (Laparra & Sanz 2010). Gut bacteria are nurtured by so-called functional foods and there has been a growing appreciation for this beneficial gut microbiota in human and animal health, which

Figure 1. Legal framework for functional food
Siro et al., 2008 Kotilainen et al., 2006; Spence, 2006.



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